

## CLAIMS

What is claimed is:

1. A radio frequency (RF) pediatric coil for magnetic resonance/imaging analysis, comprising:
  - a first end ring having a generally annular opening;
  - at least one of a second end ring and an end cap;
  - an anterior extension formed on the first end ring and on the at least one of the second end ring and the end cap; and
  - a plurality of elongated segments coupled to and positioned circumferentially around the first end ring and the at least one of the second end ring and the end cap to form a coil volume, wherein a first elongated segment and a second elongated segment are spaced about the anterior extension to facilitate access into the coil volume.
2. The coil of claim 1, further comprising an opening in the anterior extension.
3. The coil of claim 2, wherein the opening in the anterior extension is a rectangular opening.
4. The coil of claim 1, wherein the first elongated segment and the second elongated segment are spaced apart azimuthally at an angle greater than an azimuthal spacing of the remainder of the plurality of elongated segments.
5. The coil of claim 4, wherein the first elongated segment and the second elongated segment are spaced apart azimuthally by about 45 degrees.
6. The coil of claim 5, wherein the remainder of the plurality of elongated segments are spaced apart azimuthally by about 30 degrees.

7. The coil of claim 1, wherein the coil volume is selected to include at least one of a body size and a head size of a 95<sup>th</sup> percentile of newborn neonates up to three months in age.
8. The coil of claim 1, further comprising:  
a platform for restraining neonates, wherein the coil is operatively coupled to the platform to facilitate imaging of the neonates.
9. The coil of claim 1, wherein the anterior extension facilitates placement of at least one life sustaining line.
10. The coil of claim 1, wherein the coil can operate substantially unaffected in hostile environments.
11. The coil of claim 10, wherein the hostile environments include the group consisting of high temperature environment, high humidity environment and high oxygen content environment.
12. The coil of claim 1, wherein the coil is a stand alone coil.
13. The coil of claim 12, wherein the coil is a body coil.
14. The coil of claim 13, wherein the coil is configured in a high pass configuration.
15. The coil of claim 13, wherein the coil is configured in a low pass configuration.
16. The coil of claim 12, wherein the coil is a head coil.
17. The coil of claim 16, wherein the coil is configured in a high pass configuration.

18. The coil of claim 16, wherein the coil is configured in a low pass configuration.
19. The coil of claim 1, wherein the coil is operatively coupled to an incubator.
20. The coil of claim 19, wherein the coil is mounted inside the incubator.
21. The coil of claim 19, wherein the coil is a body coil.
22. The coil of claim 21, wherein the coil is configured in a high pass configuration.
23. The coil of claim 21, wherein the coil is configured in a low pass configuration.
24. The coil of claim 19, wherein the coil is a head coil.
25. The coil of claim 24, wherein the coil is configured in a high pass configuration.
26. The coil of claim 24, wherein the coil is configured in a low pass configuration.
27. The coil of claim 1, further comprising an active decoupling circuit to decouple a receive portion of the coil during a transmit.
28. The coil of claim 27, wherein the active decoupling circuit is operatively coupled to each of the plurality of elongated segments.
29. The coil of claim 27, wherein the active decoupling circuit opens each loop of the coil during the body transmit.

30. An imaging system for magnetic resonance imaging/analysis of a neonate, comprising:

an incubator;

a platform for restraining the neonate, said platform residing within the incubator; and

the coil of claim 1, wherein the coil is operatively coupled to the platform to facilitate positioning of the coil relative to the neonate.